IT IS CLAIMED:

1. A method for detecting the binding of or interaction between each or any of a plurality of ligands and one or more target antiligands, said method comprising:

(a) reacting the antiligand(s) with a set of electrophoretic tag (e-tag) probes, the set comprising j members, and each of said e-tag probes having the form:

$(D, M_j) - L - T_j$, where

(i) D is a detection group comprising a detectable label;

(ii) T_j is a ligand capable of binding to or interacting with a target antiligand,

(iii) L is a linking group connected to T_j by a bond that is cleavable by a selected cleaving agent when the probe is bound to or interacting with the target antiligand, wherein cleavage by said agent produces an e-tag reporter of the form $(D, M_j) - L'$, where L' is the residue of L attached to (D, M_j) after such cleavage,

(iv) M_j is a mobility modifier having a charge/mass ratio that imparts a unique and known electrophoretic mobility to a corresponding e-tag reporter of the form $(D, M_j) - L'$, within a selected range of electrophoretic mobilities with respect to other e-tag reporters of the same form in the probe set; and

(v) (D, M_j)- includes both $D - M_j$ - and $M_j - D$ -;

(b) treating the contacted antiligand(s) with the cleaving agent, thereby to produce a mixture of e-tag reporters having the form $(D, M_j) - L'$, and uncleaved and/or partially cleaved probes,

(c) exposing said mixture to a capture agent effective to bind to uncleaved or partially cleaved e-tag probes, but not the corresponding e-tag reporters, and effective to

(i) impart a mobility to the probes bound to capture agent that prevents the probes from electrophoretically migrating within said range of electrophoretic mobilities or

(ii) immobilize the probes on a solid support;

(d) fractionating e-tag reporters having the form $(D, M_j) - L'$ by electrophoresis, to effect separation of the e-tag reporters, and

(e) identifying the electrophoretic mobilities of one or more electrophoretic bands, each band corresponding to an e-tag reporter that is uniquely assigned to a target antiligand.

2. The method of claim 1, wherein T_j is biotinylated and the capture agent is avidin or streptavidin.

3. The method of claim 1, wherein T_j contains an antigen and the capture agent is an antibody or antibody fragment that binds specifically to the antigen.

4. The method of claim 1, wherein T_j contains a particle or mass group that effectively prevents its migration under electrophoretic conditions within the range of electrophoretic mobilities of the e-tag reporters.

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